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October 31, 2016

Ms. Patricia Simmons Pierre
Remedial Project Manager (RPM)
United States Environmental Protection Agency (EPA)
Region 2
290 Broadway FL19
New York, NY 10007-1866

Subject: Dayco Corporation/L.E. Carpenter Superfund Site
USEPA ID No. NJD002168748
Response to EPA and NJDEP Comments on Ecological Evaluation Report, dated August 15, 2016

Dear Patricia:

In this correspondence, TRC Environmental Corporation, (TRC) on behalf of L.E. Carpenter & Company (LEC), is providing written responses to Comments issued by EPA on September 15, 2016, regarding the Ecological Evaluation Report of the Eastern Drainage Ditch and Rockaway River dated August 15, 2016.

These responses, upon acceptance, will be incorporated by reference to a Revised Ecological Evaluation Report for the Eastern Drainage Ditch and Rockaway River.

In addition, this correspondence transmits the Engineering Evaluation of Options for the Eastern Drainage Ditch.

Please feel free to contact me with any questions or comments.

Sincerely,

TRC Environmental Corporation

Karen C. Saucier, Ph.D.
Project Coordinator

Attachments

cc: Anthony Cinque, NJDEP
Ernie Schaub, L.E. Carpenter

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EPA and NJDEP Comments on
Ecological Evaluation Report — Rockaway River and Eastern Drainage Ditch
Dayco Corporation/LE Carpenter Corp. Superfund Site, Borough of Wharton, New Jersey
Dated August 2016

1. ***Page 2-1, Section 2, Relevant Ecological Resources:*** *It is stated in the report that, "Consistent with USEPA Risk Assessment Guidance for Superfund (ERAGS, 1997) ecological evaluations focus on relevant ecological resources and habitats — i.e., the ecological resources that are valued at the site. Identification of relevant ecological receptors and habitats is dependent upon site-specific factors. Examples of relevant ecological resources may include species or communities afforded special protection by law or regulation; recreationally, commercially, or culturally important resources; regionally or nationally rare habitats or communities; communities with high aesthetic quality; and habitats, species, or communities that are important in maintaining the integrity and biodiversity of the environment."*

The Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments Interim Final [U.S. Environmental Protection Agency, Environmental Response Team, Edison, NJ, June 5, 1997] or ERAGS guidance should not be referred to as "USEPA Risk Assessment Guidance for Superfund." As stated in the ERAGS guidance the phrase "ecological risk assessment," refers to a qualitative and/or quantitative appraisal of the actual or potential impacts of contaminants from a hazardous waste site on plants and animals other than humans and domesticated species. Relevant resources may more appropriately refer to those ecological receptors which would have a potential complete exposure pathway to site contamination.

The reference to ERAGS will be corrected with the complete title of the referenced guidance document.

TRC disagrees that a completed exposure pathway is the sole or primary criterion for identification of a relevant receptor for an ecological risk assessment under a CERCLA framework. Under CERCLA, the USEPA (1997) defines assessment endpoints as explicit expressions of the actual environmental values (e.g., ecological resources) that are to be protected (USEPA, 1992). Valuable (i.e., relevant) ecological resources include those without which ecosystem function would be significantly impaired, those providing critical resources (e.g., habitat, fisheries), or those perceived as valuable by humans (e.g., endangered species and other issues addressed by legislation). In support of remedy decision making, the CERCLA ecological risk assessment process sets out to assess and quantify impairment to ecosystem function not solely exposure to individual receptors.

2. ***Page 4-2, Section 4.1.1, Surface Water:*** *Background surface water sample SW-EDD-B2 could be impacted by the facility located immediately upgradient of the Dayco/LE Carpenter Site, and therefore, is considered unsuitable as a surface water background reference area sample.*

The Eastern Drainage Ditch is an urban storm water conveyance in an area that is heavily developed and moderately industrialized. To that end, it is appropriate to understand

constituent concentration from upstream locations that contribute urban storm water/ surface water to the Eastern Drainage Ditch. DEHP and other phthalate plasticizers are known to exist in urban storm water at low concentrations (ATSDR, 1993). Surface water sample SW-EDD-B2 appropriately represents the DEHP concentration in an upstream reference location for the Eastern Drainage Ditch. This clarification will be added to Section 4.1.1 of the Ecological Evaluation Report.

3. ***Pages 4-3, Section 4.1.2, Sediment:*** *The NJDEP Severe Effects level (SEL) Ecological sediment Screening Criterion (ESC) for DEHP is 0.750 mg/kg. The Low Effects Level (LEL) ESC is 0.182 mg/kg. NJDEP does not recognize the referenced 2.65 mg/kg DEHP Probable Effects Level (MacDonald, 1994) utilized in Table 4-2 or the "NJDEP ESC of 1.0 µg/L (based on the PQL)" referenced on page 4-6.*

With respect to sediment, the screening of observed DEHP concentrations in sediment will be revised to include comparisons to both the NJDEP LEL (0.182 mg/kg) and SEL (0.750 mg/kg). However, the CERCLA Ecological Risk Assessment process allows for and encourages use of available defensible scientific literature to rely upon alternative screening values to fully inform the risk assessment and risk management process. The 2.65 mg/kg Probable Effects Level for DEHP from MacDonald (1994) represents a scientifically defensible screening value with deep precedent for use in CERCLA ecological risk assessments.

It is important to note that the MacDonald PEL represents a very conservative value from the literature. Comprehensive studies of sediment-associated phthalates in aquatic systems have been carried out at the University of Wisconsin in conjunction with the USEPA. In 10 day sediment toxicity tests with *Chironomus tentans* and *Hyalella azteca*, no effects were observed for several phthalates at the maximum concentration tested (3,000 mg/kg dry weight). A 28 day chronic sediment toxicity study for DEHP indicated no effects on the time to emergence or sex ratio of the midge (*Chironomus riparius*) at sediment concentrations up to 10,000 mg/kg dry weight. In another study, no effects were observed on moor frog (*Rana arvalis*) egg hatching or tadpole survival at the highest sediment concentrations tested (i.e., 600 mg/kg dry weight for DEHP). Bradlee (2003) concluded that "abundant numbers of high quality studies testing a range of phthalate esters that have examined ecologically relevant endpoints have consistently reported some toxicity with the lower esters [<C4] and no toxicity in the higher esters[>C6]." DEHP is a >C6 phthalate ester. The European Union Risk Assessment Report documents a predicted no effect concentration for DEHP of >100 mg/kg on a dry weight basis.

With respect to surface water screening, the NJDEP surface water screening value for DEHP is 0.3 µg/L. The Practical Quantitation Limit (PQL) for the analytical method for DEHP is 1.0 µg/L. Since the NJDEP screening value is below the PQL, the PQL of 1.0 µg/L was used as a surrogate screening value.

For further clarification, the NJDEP surface water screening value of 0.3 µg/L is based on a RCRA Ecological Screening Level from USEPA Region 5. The primary reference for this value indicates its basis in a dated historical Ambient Water Quality Criteria (AWQC) for phthalates of 3 µg/L, with a 10x adjustment for uncertainty. The current National Recommended Water Quality Criteria (NRWQC; 2014) does not include an aquatic life criteria for DEHP. The 2006 version of the AWQC did not list a value for DEHP and instead states in a footnote that "there is a full set of aquatic life toxicity data that shows that DEHP is not toxic to aquatic organisms at or below its solubility limit." The lower limit of the solubility of DEHP is reported at approximately 3 µg/L at 20°C.

4. ***Page 4-5, Table 4-3 and Figures 3 and 4:*** *Pore water sample results from samples (PW-R--01, -08, and -09) collected along the left bank in the Rockaway River (Table 4-3 and Figure 3) clearly indicate an area of DEHP-contaminated groundwater discharge representing a risk to benthic/aquatic biota. Likewise, sediment sample results collected in the Eastern Drainage Ditch show DEHP contamination and risk to benthic/aquatic biota (Figure 4). These risks cannot be dismissed, regardless of their estimated magnitude.*

L.E. Carpenter has previously stipulated that groundwater in the immediate vicinity of the Rockaway River bank between routine quarterly surface water locations SW-R-1 and SW-R-2 contains total DEHP above the New Jersey Groundwater Quality Standard (NJGWQS) of 3 µg/L. The pore water samples cited in the comment support that stipulation.

More recent groundwater sampling events and the pore water sampling results presented in the Ecological Evaluation Report reflect that the DEHP in the groundwater in this vicinity does not consistently contain dissolved DEHP above the NJGWQS of 3 µg/L. In addition, Rockaway River surface water in this area has not consistently contained detectable concentrations of either total or dissolved DEHP.

Groundwater in this area of the pore water sampling locations likely discharge to Rockaway River surface water. However, we do not agree that results for this focused riverbank area "clearly indicate an area of DEHP-contaminated groundwater discharge representing a risk to benthic/aquatic biota." As presented in our response to comment #3, there is a preponderance of evidence that DEHP is not toxic to aquatic organisms at or below its solubility limit of 3 µg/L. Dissolved DEHP is not consistently detected above 3 µg/L in groundwater, pore water, or surface water in any site area along the Rockaway River.

Further, constituent concentrations above a conservative screening level are not in and of themselves indicative of a risk to benthic/aquatic biota. Screening efforts should be accompanied by information from community surveys and observations. In 1992, Roy F. Weston, Inc. (Weston) conducted an ecological assessment of sediments in the Rockaway

River. The study concluded that resource type and availability were the predominant contributors to observed variations in the benthic macroinvertebrate community in the study area, and that evidence of adverse ecological effects due to releases from the Site was not observed. NJDEP and USEPA concurred with the findings of the Weston study in a 1993 letter to LEC. Since the 1992 Weston study was conducted, LEC has completed substantial source removal and remedial actions at the Site which have only served to improve conditions at the site.

With respect to the Eastern Drainage Ditch, an Engineering Evaluation of Options for the Eastern Drainage Ditch was recommended and has been transmitted with this correspondence.

5. ***Page 4-10, Section 4.3.2, Sediment:*** *One "upstream background" sediment sample (SED- RR-TA-LB) with a positive detection of DEHP is not representative of background conditions, as six other sediment samples collected in this "Rockaway River Upstream Area" were essentially non-detect for DEHP.*

The upstream reaches of the Rockaway River are heavily developed and moderately industrialized. To that end, it is appropriate to understand constituent concentrations from upstream locations that contribute urban storm water/ surface water to the Rockaway River. DEHP and other phthalate plasticizers are known to existing in urban storm water at low concentrations (ATSDR, 1993). Sediment sample SED-RR-TA-LB does represent an upstream, reference location for the Rockaway River relative to the site and its results should not be discounted. This clarification will be added to Section 4.3.2 of the Ecological Evaluation Report.

6. ***Page 5-2, Section 5, Conclusions and Recommendations:*** *Further information should be included in this section regarding the pore water sampling data collected. Further, the report recommends that the surface water monitoring in the river be reduced from quarterly to semiannual frequency. However, based upon the pore water data provided, it appears that groundwater contamination is discharging into the Rockaway River, therefore, a reduction in monitoring frequency would not be appropriate at this time. Quarterly monitoring of sediment, surface water, and pore water should be continued in the Eastern Drainage Ditch and the Rockaway River.*

The Agencies support the recommendation to evaluate engineering alternatives to address affected sediment in the Eastern Drainage Ditch.

Surface Water: The recommendation for reduction in routine Rockaway River surface water quality sampling frequency was based in the absence of meaningful variation in surface water results for DEHP over 10 years of quarterly surface water monitoring. The table below summarizes the minimum observed, maximum observed, and average

concentration in quarterly surface water results since the inception of routine sampling in April 2005.

Summary Statistics for Rockaway River Quarterly Surface Water Sampling

Metric	SW-R-1	SW-R-2	SW-R-3	SW-R-4	SW-R-4 (minus 3Q2007)	SW-R-6 Upstream
Q1 Minimum	0.90	0.95	0.95	0.90	0.90	0.95
Q2 Minimum	0.90	0.95	0.95	0.95	0.95	0.90
Q3 Minimum	1.0	0.90	0.90	0.90	0.90	0.90
Q4 Minimum	0.90	0.90	0.90	0.90	0.90	0.90
Q1 Maximum	1.1	2.5	1.6	1.2	1.2	1.1
Q2 Maximum	2.0	1.1	3.0	1.9	1.9	1.1
Q3 Maximum	1.7	2.5	3.9	19.0	1.0	1.9
Q4 Maximum	2.9	1.8	2.6	1.0	1.0	4.2
Q1 Average	1.0	1.2	1.1	1.0	1.0	1.0
Q2 Average	1.1	1.0	1.2	1.1	1.1	1.0
Q3 Average	1.1	1.2	1.6	2.6	1.0	1.1
Q4 Average	1.1	1.0	1.1	1.0	1.0	1.3

With the exception of an anomalously high DEHP concentration of 19 µg/L in SW-R-4 in September of 2007, the DEHP concentrations in surface water over 10 years do not display variation on a quarterly basis. The anomalously high DEHP concentration could be related to localized heavy rain events in conjunction with remediation management activities in the wetland area during this time period. TRC believes that the consistency in surface water results is sufficient to support reduction of sampling from four times per year (quarterly) to two times per year (semiannually).

Pore Water: TRC does not believe that there is value in routine pore water sampling. Due to the rocky subsurface that is a combination of mining residuals and glacial deposits, pore water sampling has proven problematic in the wetland and Rockaway River environments. The samplers often do not yield sufficient water for analysis and unfiltered samples are compromised with entrained solids/sediment, which, in TRC's opinion, are not representative of adjacent groundwater or surface water quality.

Sediment: The reference to continued monitoring of sediment appears to be in error, as sediment is not currently included in any routine monitoring program for the Site. Further, there is no technical rationale to commence the monitoring of sediment in the Eastern Drainage Ditch or the Rockaway River on a quarterly basis. There is no expectation that nature of the sediment deposits or concentrations within the sediment

deposits change with any frequency. Additionally, the Rockaway River does not have a continuous sediment bed. Sediment deposits are patchy and confined to slack-water channels between the islands, and backwaters along the banks.

Eastern Drainage Ditch: LE Carpenter/TRC are actively evaluating engineering measures for the Eastern Drainage Ditch. An Engineering Evaluation of Options for the Eastern Drainage Ditch has been transmitted with this correspondence.

References

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Bradlee, Christopher A. and Paul Thomas. 2003. Aquatic Toxicity of Phthalate Esters. The Handbook of Environmental Chemistry Vol. 3, Part Q (2003): 263–298.

European Chemicals Bureau. 2008. European Union Risk Assessment Report: bis (2-ethylhexyl)phthalate (DEHP). Institute for Health and Consumer Protection. Editors: S. Pakalin, K. Aschberger, O. Cosgrove, B-O. Lund, A. Paya-Perez, S. Vegro. Office for Official Publications of the European Communities. 2008 – VIII pp., 575 pp.

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